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Peter Lurkens

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Please find below and/or attached an Office communication concerning this application or proceeding.

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/500,507
Filing Date: 06/29/2004
Appellant(s): LUKRENS, PETER

Dicran Halajian
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 09/28/2006 appealing from the Office action mailed 06/29/2006.

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(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal is contained in the brief

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,535,403	Jungreis et al.	03-2003
4,949,015	Nilssen	08-1990
5,712,536		

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 U.S.C. § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, and 8-14 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Nilssen (U.S. pat. 4,949,015) in view of Jungreis et al. (U.S. Patent No. 6,535,403).

With respect to claim 12, Nilssen discloses in electronic circuit for operating a high-pressure lamp in at least two modes, a first half bridge (Qa1,Qa2) and a second bridge (Q1b,Qb2) connected in parallel and the improvement comprising: second means for operating the first half bridge, whereby the first half bridge and the second half bridge operate independently of each other (See column 4, line 61-68)(i.e. "a first mode wherein the first pair of switching transistors self-oscillate in manner of a half-bridge inverter and powers a first load, and a second mode wherein both pairs of transistors self-oscillate in manager of a full-bridge inverter an then powers a seonc d load in addition to the first load" (column 1, line 55-61)), but Nilssen does not disclose a filter coupled to the output of the first haft bridge circuit, a resonant circuit coupled to the output of the second haft bridge circuit. However, Jungreis et al. discloses a filter (L_1C_1) coupled to the output of first haft bridge circuit ((Q_1Q_2) and a resonant circuit (L_2) coupled to the output of a second haft bridge circuit (Q_3Q_4). It would have been obvious

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to one of ordinary skill in the art at the time the invention was made to modify the electronic circuit of Nilssen by arranging the filter and resonant coupled to the first and second half bridge in order to generate a pulse width modulation output voltage having a distorted output voltage waveform and compensate for the distorted output voltage waveform response to the ripple current since such an arrangement of the filter and resonant circuit for the state purpose has been well known in the art as evidenced by the teaching of Jungreis et al. (see column 1, line 65-68 and column 2, line 1-5).

With respect to claims 1, 8-9 and 12-14, Nilssen discloses all limitations recited in claim 12 except for the first filter includes a first coil coupled to the output of the first half bridge and the resonant circuit includes a second coil coupled to the output of the second half bridge characterized by a first capacitor coupled between the first coil and either the reference potential (-) or the operating potential (+) and second capacitor coupled between the second coil and either the reference potential (-) or the operating potential (+) or in parallel to the high pressure lamp. However, Jungreis et al. discloses the first filter includes a first coil (L1) coupled to the output of the first half bridge (Q1, Q2) and the resonant circuit includes a second coil (L2) coupled to the output of the second half bridge (Q3,Q4) characterized by a first capacitor (C1) coupled between the first coil (L1) and either the reference potential (-) or the operating potential (+) and second capacitor (C2) coupled between the second coil (L2) and either the reference potential (-) or the operating potential (+) (See fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the circuit of Nilssen by arranging the first filter includes a first coil (L1) coupled to the output

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of the first half bridge and the resonant circuit includes a second coil coupled to the output of the second half bridge characterized by a first capacitor coupled between the first coil and either the reference potential (-) or the operating potential (+) and second capacitor coupled between the second coil and either the reference potential (-) or the operating potential (+) in order to restore a substantially pure sinusoidal output voltage waveform to the output of a converter, regardless of the load current level or power level for the stated purpose has been well known in the art as evidenced by teaching of Jungreis et al. (See column 1, line 40-43).

With respect to claim 10, Jungreis et al. discloses with the same structure as claim invention so the system will provide the same function as invention.

With respect to claim 11, Jungreis et al. discloses the claimed invention except for voltageless switching. It would have been obvious to one having ordinary skill in the art at the time the invention was made to different kind of switching, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

3. Claims 2-4 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Nilssen (U.S. pat. 4,949,015) in view of Jungreis et al. (U.S. Patent No. 6,535,403) as applied to claim 1, in view of Haas et al. (U.S. Patent No. 5,712,536).

With respect to claims 2-4, Nilssen and Jungreis et al. disclose all of the claimed as expressly recited in claim 1, except for the third capacitor being connected between the output of the half bridge and either operating potential (+) or reference potential (-)

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and in that a fourth capacitor is connected between the operating potential (+) and the output of the first half bridge, Haas et al. discloses the third capacitor C_{s2} and fourth capacitor C_{s1} is connected between the output of the half bridge S_1, S_2 and either operating potential (+) or reference potential (-) (See fig. 3). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify Jungreis et al. and Nilssen to have the third capacitor as taught by Haas et al. The motivation for doing so would have been to provide third capacitor and fourth capacitor is connected between the output of the half bridge and either operating potential (+) or reference potential (-) in order to have constitutes the voltage on boost third capacitor.

Allowable Subject Matter

4. Claim 5-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, since the prior art of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed a circuit includes a sensor device, a comparator device for comparing the value represented by the current-sensor signal with a given reference current value I_r and for generating at least one control signal.

(10) Response to Argument

I (**Issue**): did the Examiner err in concluding that claims 1 and 8-14 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Nilssen (U.S. pat. 4,949,015) in view of Jungreis et al. (U.S. Patent No. 6,535,403).

a. In the first argument, the appellant state *"It is respectfully submitted that "as long as the other is maintained in a non-operative state" is the antithesis of "independent" operation and no amount of verbal gymnastics can make it otherwise; see definition 3. of "independent" given below. It is respectfully submitted that the sentence does not support the Examiner's interpretation."*, (page 4).

Appellant asserts in all argument that "independent" operation literally means one inverter in operation while the remaining is not. The examiner does agree with this argument in light of the teaching of page 4 of the specification in supportive of the claimed embodiment.

However, the examiner strongly disagrees with the allegation that Nilssen does not support this "independent" operation. It is worthy to note that lines 54-57, column 1 of Nilssen discuss the "self-oscillating" embodiment. It is the examiner's position that "self-oscillating" is in every sense meeting the requirement as claimed. It is further note that lines 55-61, column 1 or column 7, line 32-60, in Nilssen clearly setting forth both pair of half bridge self oscillating (see column 1, line 54-57 or column 7, line 32-60).

This similarity conveyed by in one of the embodiments of Nilssen teaching clearly supports the embodiment as claimed. As such, the examiner does not believe the claimed invention is patentably distinct over Nilssen.

In responding to the remaining argument, the examiner offers the following counter comments.

b. In the second argument, the appellant state, *"An inoperative state, by definition, is not operative and, therefore, not part of independent operation. How can*

non-operation be operation? -The Examiner's interpretation is contrary to the ordinary meaning of the words. One does not consider "off" or "non-operating" as "on" or "operating." Given the Examiner's interpretation of "operate," a simple request to turn the lights off in a room becomes meaningless. Does a lamp that burns out thereafter "operate independently" of others on a common branch? An ordinary person would think not. It is respectfully submitted that one of ordinary skill in the art would certainly think not" (page 4).

In the second argument, the Appellant's argument has not been found to be persuasive. As presented, Nilssen discloses both half-bridge are operable and independently of each other (i.e., *"The inverter is conditionally operable to **self-oscillate** in either of two modes" (column 1, line 54-55) or "this second half-bridge inverter being **capable of inverter operation independent** of the stage of operation of the first half-bridge inverter...such that, when both half-bridge inverters are engaged in inverter operation, they operate jointly in the form of a full-bridge inverter and provide power to both the main lamp power input " (column 7, line 35-55) or "When both half-bridge inverters **are in operation**" (column 5, line 10-13)).* The Appellant's argument in some embodiment in Nilssen that Nilssen discloses "the full-bridge inverter of FIG. 1 actually consists of two half-bridge inverter either of which can be made to operate independently of the other, as long as the other is maintained in a non-operative state". However, The whole Nilssen's patent discloses two half-bridge are operable and independently of each other (see above).

c. In the third argument, the appellant state, "As explained in column 4, line 1-20, of the Nilssen patent inverter (Qa1 and Qa2) oscillates first and then invert (Qb1 and Qb2) is triggered. Once triggered, the inverter are locked in a feedback loop "Transistor-pair Qb1/Qb2 starts to get involved in the positive feedback cycle and thereby in the inverter action" getting "involved" is not independent operation" (page 5).

In the third argument, the Appellant's argument has not been found to be persuasive because Nilssen discloses in different embodiment that the two half-bridge are operable independently (see response in the second argument above).

d. In the fourth argument, the appellant state, *"if one does not operate transistors Qb1 and Qb2, then one has a single half-bridge circuit, not two half-bridges operating independently. The Examiner's interpretation that having one half-bridge not operating is independent" operation is simply not supported by the language of the Nilssen patent, such as it is.*" (Page 5-6).

In the fourth argument, the Appellant's argument has not been found to be persuasive because Nilsson discloses 2 half bridge are operable independently (*i.e.*, *"The inverter is conditionally operable to **self-oscillate** in either of two modes"* (column 1, line 54-55) or *"this second half-bridge inverter being **capable of inverter operation independent of the stage of operation of the first half-bridge inverter...such that, when both half-bridge inverters are engaged in inverter operation, they operate jointly in the form of a full-bridge inverter and provide power to both the main lamp power input** "* (column 7, line 35-55) or *"When both half-*

bridge inverters are in operation" (column 5, line 10-13)).

e. In the fifth argument, the appellant state, *"if one does not trigger inverter (Qb1 and Qb2) then one must switch output terminals; viz. use terminals JC and jXa instead of Jxa and JXb when using two half-bridges [column 5, line 4-15]. This is not independent operation" (Page 6).*

In the fifth argument, the Appellant's argument has not been found to be persuasive because in column 5, line 4-15, Nilsson discloses output terminals between the common terminal JC with between junction Jxa and JXb (i.e., *"When both half-bridge inverter are in operation, the output from the then resulting full-bridge inverter is simply between junction JXa and JXb-with the common terminal JC"* (column 5, line 10-15)). Further, Nilsson discloses two half-bridge are operable independently (see first response in first argument).

f. In the sixth argument, the appellant state, *"The Jungreis et al. patent discloses in column 2, line 49-51, that the half bridges are operated 180⁰ out of phase, which is not independent operation. Clearly there is no basis for the combination; in re Rouffet, 47USPQ2d 1453, at 1457 (Fed. Cir. 1998). What is the bails for picking one part of the disclosure from the Jungries et al. patent and ignoring the requirement for operating 180⁰ out of phrase (i.e., not independently)" (Page 6).*

In the sixth argument, the Appellant's argument has not been found to be persuasive because in the office action, Examiner explained that Nilssen does not explicitly discloses a filter and resonant circuit and Jungreis et al. discloses a filter and

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resonant circuit. The motivation for combination included the resonant circuit and filters in the Nilsson's system for generating a pulse with modulation output voltage having a distorted output voltage waveform and compensate for the distorted output voltage waveform response to the ripple current (see rejection above).

g. In the seventh argument, the appellant state, *"The Nilssen patent discloses a fluorescent lamp. The Jungreis et al. patent discloses an HID lamp. What is the basis for the combination? Does one having "fluorescent lamp having thermionic cathodes that need to be pre-heated before the lamp is properly ready to b ignited" [Nilssen, column 1, lines 8-10] look to the HID art for a ballast? Clearly there is no basis for the combination; In re Rouffet."* (Page 6).

In the seventh argument, the Appellant's argument has not been found to be persuasive. The Examiner does not agree with the Appellant's argument because Jungreis et al. discloses "Load" (see fig. 1) (not HID LAMP) and Nilssen discloses the fluorescent lamp but Nilssen further discloses that fluorescent lamp can be a load (*i.e.*, *"a second mode wherein both pairs of transistors self-oscillate in manner of an full-bridge inverter and then powers a second load in addition to the first load"* (column 1, line 55-60)). Both the Nilsson and Jungreis disclose the same field and it is helpful when combine the two references (see rejection above).

h. In the eighth argument, the appellant state, *"Concerning the Jungreis et al. patent, the Examiner then asserts that the patent discloses a filter coupled to the first half bridge circuit and a resonant circuit coupled to the output of the second half bridge circuit."*

(1) The Jungreis et al. patent overcomes none of the foregoing difficulties in the disclosure of the Nilssen patent and introduces several more of its own.

(2) The Jungreis et al. patent does not use the word "resonant." What is the basis for the Examiner's allegation that it discloses a resonant circuit?

(3) The Jungreis et al. patent is concerned with an inductor having a value related to the pulse width modulation of the current. See equations (1) and (2) in column 4 of the Jungreis et al. patent. It is respectfully submitted that this teaches away from a resonant circuit.

(4) Appellant discloses at page 1, lines 21-25 of the specification.

"The first coil 1 and the capacitor 2 are to be dimensioned for the normal operational mode such that they act as a filter for filtering out the AC component from the lamp current. They are definitely not operated in a resonant mode during this, i.e. the switching frequencies of the two transistors 12 and 13 are substantially higher than the resonance frequency of a resonant circuit formed by the first coil i and the capacitor 2"
[emphasis added].

In other words, appellant distinguishes between "resonant circuit" and "filter."

The Examiner asserts the following (page 7 of final Office Action).

"Jungreis et al. discloses the resonant circuit as L₁, C₁ and L₂, C₂. A circuit that contains inductance, capacitance, and resistance of such values as to glue resonance at an operating frequency based the definition of "resonant circuit (MC Grew-Hill Encyclopedia of Science & Technology online)." In other words, the Examiner is re-

writing the claims to recite two resonant circuits when two resonant circuits are not recited. Re-writing a claim to support a rejection is not proper examination." (Page 6).

In the eighth argument, the Appellant's argument has not been found to be persuasive because Jungreis et al. does not disclose the word "resonant" but the circuit in Jungreis et al. is the resonant circuit. For specific, Jungreis et al. discloses the inductor L2 and capacity C2 (see fig. Below). This is the LC circuit (*i.e.*, "*a first half-bridge connected to an LC circuit*" (column 1, line 60-65)) and with the characteristic of LC circuit that the resonant frequency of the LC circuit (in radians second) is $\omega = \sqrt{1/LC}$ and f is the resonant frequency $f = 1/(2\pi\sqrt{LC})$. Further, based on the Appellant's summary filed on 4/02/2007 in the Appeal Brief (page 3, first paragraph), the Jungreis et al. discloses the same circuit structure and connection of the Appellant's resonant circuit (Appellant's coil L and C2 (page 3, first paragraph) are the same the L2 and C2 (fig. below) in the Jungreis et al.). Further, Jungreis et al. discloses the filter L1 (see fig. 1) (*i.e.*, "*a first half-bridge connected to an LC circuit comprising an output filter inductor and an output filter capacitor*" (column 1, line 64-67)). Therefore, The Examiner is not re-writing the claims.

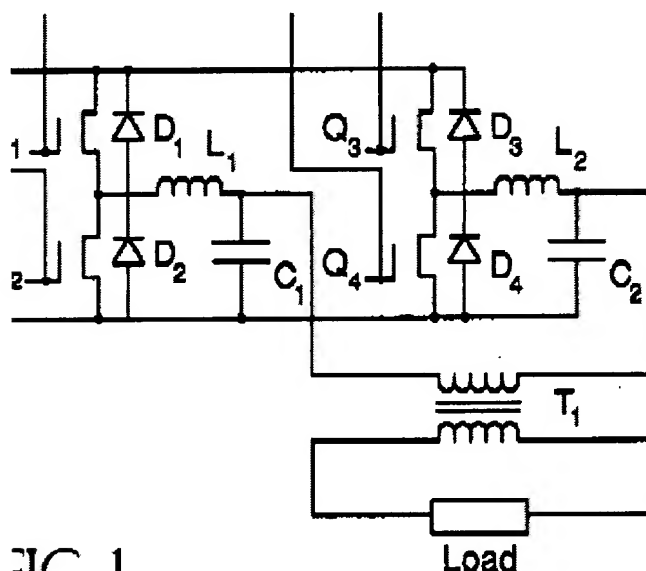


FIG. 1

2. I (Issue): did the Examiner err in concluding that claims 2-4 were anticipated under 35 U.S.C. 103 (a) as being unpatentable over Nilssen (U.S. pat. 4,949,015) in view of Jungreis et al. (U.S. Patent No. 6,535,403) as applied to claim 1, in view of Haas et al. (U.S. Patent No. 5,712,536).

a. In the first argument, the appellant state *"The third capacitor (claim 2 relates to timing; see paragraph bridging pages 9 and 10 of appellant's published PC application. The mentions of "boost" in the Examiner's rationale makes no sense because "boost" is not used in claims 2, 3, or 4" (Page 8).*

In the first argument, the Appellant's argument has not been found to be persuasive because with modify Nissen and Jungreis et al. by arranging the third capacitor of Haas et al. in order to provide a reduced bus voltage integrated boost high power factor circuit for compact fluorescent lamp (Hass, column 1, line 66-67 and column 2, line 1-5)).

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b. In the second argument, the appellant state "*The fifth capacitor and six capacitor are not discussed in the Examiner remarks-or disclosed or suggested by the Hass et al. patent.*" (page 8).

In the second argument, the Appellant's argument has not been found to be persuasive because the limitation of claim 3 is the same limitation of claim 4. Both the claims 3 and 4 depend on claim 1. Therefore, Hass et al. discloses the third capacitor or a fifth capacitor (C_{s2}) and fourth capacitor or sixth capacitor (C_{s1}) is connected between the output of the half bridge S_1, S_2 and either operating potential (+) or reference potential (-) (See fig. 3).

c. In the third argument, the appellant state "*There is no apparent basic for the combination of prior art proposed by the Examiner, other than appellant's claims, which is improper; In re Fouffet.*" (page 8).

In the third argument, the Appellant's argument has not been found to be persuasive because the motivation has been disclosed in the rejection and more clearly in second response b above. Therefore, it is proper rejection.

3. I (**Issue**): did the Examiner err in concluding that claims 5-7 were anticipated under 35 U.S.C. 103 (a) as being unpatentable over Nilssen (U.S. pat. 4,949,015) in view of Jungreis et al. (U.S. Patent No. 6,535,403) as applied to claim 1, in view of Pogadaev et al. (U.S. Patent No. 6,369,526).

In the argument, the Appellant's argument has not been found to be persuasive therefore, the claims 5-7 had been withdrawn and the claims 5-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in

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independent form including all of the limitations of the base claim and any intervening claims.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Conferees:

A. , SPE AU 2168.

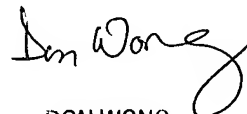
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